

ABSTRACT

The present invention relates to block copolymers intended to constitute an elastomeric matrix of a cross-linkable rubber composition with reduced hysteresis, to such a rubber composition which is usable in the cross-linked state in a tire tread, to such a tire tread and to a tire comprising said tire tread which exhibits reduced rolling resistance. A copolymer with  $\underline{n}$  blocks ( $\underline{n} = 2$  or  $3$ ) according to the invention, each of said blocks comprising a diene elastomer having a molar content of units originating from conjugated dienes of greater than 15%, and one or each of said blocks which forms the chain end of said copolymer consisting of a polyisoprene, when  $\underline{n} = 2$  or  $\underline{n} = 3$  respectively, is such that the number-average molecular weight  $M_{n1}$  of said or each polyisoprene end block is between about 2,500 and 20,000 g/mol, and such that the number-average molecular weight  $M_{n2}$  of the block of said copolymer which is other than said or each polyisoprene end block is between about 80,000 g/mol and 350,000 g/mol.